WHAT IS CLAIMED IS:

1. A semiconductor device manufacturing system for manufacturing a semiconductor device on a wafer, comprising:

a first exposure apparatus for exposing said wafer using a light source while moving said wafer with a predetermined interval; and

a second exposure apparatus for exposing said wafer by irradiating a plurality of electron beams on said wafer, said plurality of electron beams having an interval of substantially N times or 1/N times, where N is a natural number, of said predetermined interval.

2. A semiconductor device manufacturing system as claimed in claim 1, wherein:

said second exposure apparatus has a plurality of multi-axis electron lenses that converge each beam of said plurality of electron beams independently; and

each of said multi-axis electron lenses has a plurality of lens opening parts for said plurality of electron beams to pass through; and

said lens opening parts are separated with an interval of substantially N times or 1/N times of said predetermined interval of said first exposure apparatus for moving said wafer.

3. A semiconductor device manufacturing system as claimed in claim 2, wherein: each said multi-axis electron lens has a plurality of dummy opening parts, through which the electron beams do not pass, arranged around a periphery of said plurality of lens opening parts.

4. A semiconductor device manufacturing system as claimed in claim 2, wherein:

each said multi-axis electron lens has a lens unit that

includes said lens opening parts; and

said lens opening parts are arranged to be uniformly distributed all over said lens unit.

5. A semiconductor device manufacturing system as claimed in claim 2, wherein:

each said multi-axis electron lens has a lens unit that includes said lens opening parts; and

said lens opening parts are arranged in said lens unit in a belt-like shape.

6. A semiconductor device manufacturing system as claimed in claim 4 or 5, wherein: said lens opening parts at a center region of said lens unit have a diameter that is smaller than the diameter of said lens opening parts at an outer region of said lens unit.

7. A semiconductor device manufacturing system as claimed in claim 4 or 5, wherein:

said lens unit includes a first lens-part magnetic conductive member and a second lens-part magnetic conductive member that are arranged substantially parallel to each other with a space in between; and

said lens unit further includes a nonmagnetic conductive member in the space between said first lens-part magnetic conductive member and said second lens-part magnetic conductive member.

8. A semiconductor device manufacturing system as claimed in claim 2, wherein:

each said multi-axis electron lens has a lens unit that includes said lens opening parts and a coil unit provided around said lens unit for generating magnetic fields; and

said coil unit includes a coil part magnetic conductive member, which is a magnetic conductive member, and a coil for generating said magnetic fields; and

said lens unit includes a plurality of lens-part magnetic conductive members, which are magnetic conductive members; and

magnetic permeability of a material that forms said coil-part magnetic conductive member and magnetic permeability of a material that forms said lens-part magnetic conductive members are different.

9. A semiconductor device manufacturing system as claimed in claim 1, wherein:

said second exposure apparatus has a plurality of deflectors that deflect each beam of said plurality of electron beams independently; and

said deflectors are separated with an interval of substantially N times or 1/N times of said predetermined interval.

10. An electron beam exposure apparatus for exposing a wafer, in combination with exposure by an optical stepper, using a plurality of electron beams, comprising:

an exposure unit for exposing said wafer by irradiating said plurality of electron beams on said wafer, said plurality of electron beam having an interval of substantially N times or 1/N times, where N is a natural number, of a predetermined interval of said optical stepper for moving said wafer.

11. An electron beam exposure apparatus as claimed in claim 10, wherein:

said exposure unit has a plurality of multi-axis electron lenses that converges each beam of said plurality of electron beams independently; and

each of said multi-axis electron lenses has a plurality of lens opening parts for passage of said plurality of electron beams; and

said lens opening parts are separated with an interval of substantially N times or 1/N times of said predetermined interval.

12. An electron beam exposure apparatus as claimed in claim 11, wherein: each said multi-axis electron lens has a plurality of dummy opening parts, through which the electron beams do not pass, arranged around a periphery of said plurality of lens opening parts.

13. An electron beam exposure apparatus as claimed in claim 11, wherein:

each said multi-axis electron lens has a lens unit that includes a plurality of said lens opening parts; and

said lens opening parts are arranged to be substantially uniform all over said lens unit.

14. An electron beam exposure apparatus as claimed in claim 11, wherein:

each said multi-axis electron lens has a lens unit that includes said lens opening parts; and

said lens opening parts are provided in said lens unit such that said lens opening parts form a belt-like shape.

15. An electron beam exposure apparatus as claimed in claim 13 or 14, wherein: said lens opening parts at a center region of said lens unit have a diameter that is smaller than the diameter of said lens opening parts at an outer region of said lens unit.

16. An electron beam exposure apparatus as claimed in claim 13 or 14, wherein:

said lens unit includes a first lens-part magnetic conductive member and a second lens-part magnetic conductive member that are arranged substantially parallel to each other with a space in between; and

said lens unit further includes a nonmagnetic conductive member in the space between said first lens-part magnetic conductive member and said second lens-part magnetic conductive member.

17. An electron beam exposure apparatus as claimed in claim 11, wherein:

each said multi-axis electron lens has a lens unit that includes said lens opening parts and a coil unit provided around said lens unit for generating magnetic fields; and

said coil unit includes a coil part magnetic conductive member, which is a magnetic conductive member, and a coil for generating said magnetic fields; and

said lens unit includes a plurality of lens-part magnetic conductive members, which are magnetic conductive members; and

magnetic permeability of a material that forms said coil-part magnetic conductive member and magnetic permeability of a material that forms said lens-part magnetic conductive members are different.

18. An electron beam exposure apparatus as claimed in claim 10, wherein:

said exposure unit has a plurality of deflectors that deflect each beam of said plurality of electron beams independently; and

said deflectors are separated with an interval of substantially N times or 1/N times of said predetermined interval.

19. A method for manufacturing a semiconductor device on a wafer, comprising:

exposing said wafer using a light source while moving said wafer with a predetermined interval; and

exposing said wafer by irradiating a plurality of electron beams on said wafer, said plurality of electron beams having an interval of substantially N times or 1/N times, where N is a natural number, of said predetermined interval.